

REMARKS

Claims 1-14, 17, 22 and 24-41 remain pending in the application. Claims 15-16, 18-21, 23 and 42 were previously cancelled without prejudice. The Office Action indicates claims 13, 29 and 30 are directed toward allowable subject matter and would be allowable if rewritten in independent form. Applicant respectfully requests that this matter be held in abeyance until the remarks and amendments presented herein have been considered.

By way of this amendment, Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Advisory Action Requested

If this response does not result in a Notice of Allowance, Applicant hereby requests a timely Advisory Action.

Claim Rejections - 35 U.S.C. §101

Claims 40 and 41 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicant respectfully traverses.

The Office Action avers that claims 40 and 41 contain a computer program product and that a computer program must be recited as “a computer-readable medium encoded with a computer program” to be considered statutory subject matter. (Office Action Page 2, Lines 14-15). Applicant respectfully disagrees, but has amended the claims to comply with the Office Action averment and further prosecution of the application. Accordingly, Applicant requests that this rejection be withdrawn.

Claim Rejections - 35 U.S.C. §112

Claims 1-3, 17, 40 and 41 were rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as his invention. Applicant respectfully traverses.

In the previous Office Action response, Applicant explained that the claim language “outputting images” and “outputting frames” is definite and supported in the specification. The Office Action maintained the indefiniteness rejection averring this time that the claim language (“outputting frames” and “outputting images”) is inconsistent with previously recited limitations. (Office Action, Page 17, Lines 4-11). Specifically, the Office Action asserts that it is unclear how several images are output from the plane when only one image was previously projected onto the plane. (Office Action, Page 3, Lines 16-17). Applicant has amended independent claims 1, 17, 40 and 41 to overcome this rejection.

The amendments are supported in the specification, such as for example, by at least original claims 2 and 5, the Abstract, and throughout the specification. For example, the Abstract states “[i]mages sequentially projected onto the plane are outputted as new moving images.” Furthermore, the specification teaches a system for sequentially generating the frames of moving pictures. The frames are generated by an image conversion unit 60 having an image formation unit 66 that forms (projects) frames by synthesizing data for each read out pixel line. (Application, Page 15 Lines 19-20 - Page 16 Lines 1-2). The formation unit 66, in one embodiment, projects the frames according to the equation $(P_{Fr}(x, y, t_0) = (P(x, y, t_0 - y))$; where as shown in FIG 1. x and y are the pixel coordinates of the current frame 12 of the original moving picture, and t_0 is a time value on the time axis t . (Application, FIG 1, Page 8, Lines 18-21 and Page 16, Lines 6-9). The projected frames are then synthesized by the image formation unit 66 and are sequentially written to a display buffer 74. (Application, Page 16, Lines 21-24). The display buffer 74 holds the frames for an image data output unit 76 that retrieves the frames. (Application Page 17, Lines 6-9). The data output unit 76 then sequentially outputs the frames stored in the display buffer 74 as an output moving picture. (Page 17, Lines 9-11).

Accordingly, Applicant requests that this rejection be withdrawn.

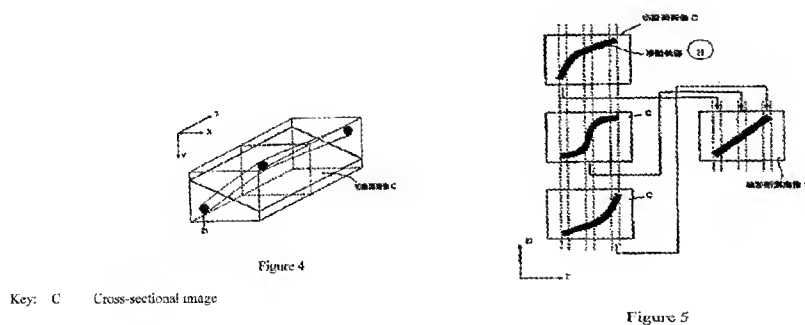
Claim Rejections - 35 U.S.C. §103

Claims 1-9, 14, 17, 22, 24-28, 31-36, 40 and 41

Claims 1-9, 14, 17, 22, 24-28, 31-36, 40 and 41 were rejected under 35 U.S.C. §103 as being unpatentable over JP-09-035040 (Seki). Applicant respectfully traverses.

First Traverse

Independent claims 1, 4 and 40 recite in various forms projecting an image that appears on the cut surface onto a plane perpendicular to the time axis. The Office Action avers that Seki teaches projecting an image (C) that appears on the cut surface (I) onto a plane (L) perpendicular to the time axis. (Office Action Page 4, Lines 11-16). Applicant respectfully disagrees and asserts that Seki's plane (L) is not perpendicular to the time axis t.



Specifically, Seki teaches that trace cross-sectional image $L(s, \theta; t)$, (see Figure 5, reproduced above), is an image obtained by cutting, (see Figure 4, reproduced above), the time-space image $I(x, y; t)$ with a helix plane along the movement direction of the object. (Seki, Paragraph 12, Lines 6-8). This plane completely contains the information pertaining to the movement of the object, that is, movement velocity (speed) and movement direction. (Seki, Paragraph 12, Lines 8-11). Nowhere

does Seki disclose or suggest that the trace cross sectional image (L) is perpendicular to the time axis t. Therefore, Applicant's claims are patentable over Seki.

In fact, Seki teaches away from the trace cross sectional image (L) being perpendicular to the time axis t. This can be seen clearly in Seki's Figure 5 which shows the two dimensional trace cross sectional image (L) has a time axis t. The fact that the time coordinate t is included contradicts the image (L) being perpendicular to the time axis t. Stated differently, Seki teaches that image (L) contains information pertaining to a speed of the movement of an object, which is why the time coordinate t is included. The Examiner's assertion that Seki's image (L) is perpendicular to the time axis contradicts Seki's teaching that image (L) contains information pertaining to a speed of the movement of an object.

What is more, Seki describes that image (L) is intended to represent a locus of movement of an object. As such, the image (L) cannot be perpendicular to the time axis t, which would be appreciated by anyone skilled in the art as a matter of course. An interpretation that the image (L) is perpendicular to the time axis t would be misconstruing the reference in a manner contradictory with its very purpose.

Moreover, projecting Seki's cross section image (c) into a plane perpendicular to the time axis would defeat the stated purpose of Seki: that is to extract an object movement trace. (Seki, Paragraph 5, Line 2). The trace cross sectional image (L), after all, is a depiction of the object movement over time. As explained by Seki, the trace cross sectional image (L) captures the speed and direction of the object. (Seki, Paragraph Paragraph 12, Lines 8-11). If the cross section image (C) were projected into a plane perpendicular to the time axis as the Office Action asserts, there would be no information about the speed and direction of the object and Seki's device would not work for its intended purpose.

Therefore, the rejections of independent claims 1, 4 and 40, as well as their dependent claims, should be withdrawn.

Second Traverse

Independent claims 1, 4, 17, 22, 24, 40 and 41 recite in some form, outputting moving pictures. Claims 22 and 24, for example, have a data output unit that outputs reconstructed frames.

The Office Action avers that this limitation is taught by Seki.

Applicant hereby reasserts its previous assertion that Seki's disclosure is directed toward outputting a single still image. The Examiner continues to assert that Seki either discloses or suggests the generation of a sequence of images and moving images. The Examiner bases this assertion on Seki's Paragraph [0015]. (Final Office Action, Bottom of Page 18, and Middle of Page 19). But Seki's Paragraph [0015] says nothing about generating moving pictures. Instead, that paragraph merely states that "the trace cross-sectional image" may be obtained for each of plural objects. Applicant asserts that in the context of the Seki's whole document, "the trace cross-sectional image" means a single still image. There is nothing in Seki that teaches or suggests how the single images might somehow be made into moving pictures

Based on Seki's paragraph [0015], the Examiner asserts "whereby a special effect may then be visualized showing the movement of several objects in the sequence of images." (Office Action, Page 5, Lines 5-9). Applicant disagrees because this assertion by the Examiner simply does not follow from Seki's paragraph [0015]. The described special effect is in fact an unsupportable conclusion made by the Office Action. As explained above, Seki's method is for generating an object trace, not a special effect. And again, Seki's disclosure is directed toward outputting a single still image. Seki's single mention of generating a trace image for each object is nothing more than outputting a single still image for each object. There is nothing in Seki that discloses or suggests outputting moving pictures.

Therefore, the rejections of independent claims 1, 4, 17, 22, 24, 40 and 41, as well as their dependent claims, should be withdrawn.

Third Traverse

Applicant's claim 1 recites "cutting the box space by a surface that contains a plurality of points each of which differs from the other in time value". Applicant's independent claims 4 and 40 include similar language.

In the Final Office Action the Examiner makes clear that he considers Seki's surface (I) to correspond to Applicant's claimed "cut surface". (Final Office Action, Last Line of Page 17, and

Middle of Page 18). But Seki's surface (I) cannot correspond to Applicant's claimed "cut surface". This is because Seki states that $I(x, y)$ is a representation of the images at an instant (11, 12, 13) shown in Seki's Figure 2. (Seki, Paragraph [0011], lines 2-3). Because each image (11, 12, 13) is at "an instant", it follows that every point in each image has the same time value. This means that each image, such as for example image 11, which according to Seki is represented as $I(x, y)$, does not contain any points that differ in time value. Therefore, none of Seki's surfaces (I) are "a surface that contains a plurality of points each of which differs from the other in time value", as is required by Applicant's claim 1. This means Seki's surface (I) cannot correspond to Applicant's claimed "cut surface".

Therefore, the rejections of independent claims 1, 4, and 40 should be withdrawn.

Claims 10-12 and 37-39

Claims 10-12 and 37-39 were rejected under 35 U.S.C. §103 as being unpatentable over Seki in view of Fel's "Techniques for Interactive Video Cubism". Applicant respectfully traverses.

Claims 10-12 and 37-39 depend from claims 1 and 22 and are patentable for the same reasons as claims 1 and 22. Fels like Seki fails to disclose or suggest projecting an image that appears on the cut surface onto a plane perpendicular to the time axis making the claims patentable over Seki in view of Fels.

CONCLUSION

Applicant submits that the amendments and remarks presented herein place all pending claims in condition for allowance and early notification of the same is respectfully requested.

Respectfully submitted,
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